

## **CLAIMS**

1. An electrochemical element or cell, characterized in that it contains an anode, a separator, and a cathode composed of manganese dioxide, in that this cathode incorporates an inorganic crystalline additive of tungsten oxide, compounds of zirconium, titanium oxide with rutile structure, yttrium oxide, cerium oxide, zeolites and aluminosilicates, and at least one of these is present in a proportion or range between one ten thousandth (0.0001) and ten (10) percent by weight of the cathode mass.

2. The electrochemical element or cell according to the first claim, further characterized in that the inorganic crystalline additives included in the cathode consist of tungsten oxides, specifically barium tungstenate ( $\text{BaWO}_4$ ), sodium tungstenate ( $\text{Na}_2\text{WO}_4$ ), strontium tungstenate ( $\text{SrWO}_4$ ) and manganese (II) tungstenate ( $\text{MnWO}_4$ ).

3. The electrochemical element or cell according to the first claim, further characterized in that the inorganic crystalline additives included in the cathode consist of zirconium compounds, specifically zirconium oxynitrate ( $\text{ZrO}(\text{NO}_3)_2$ ) and zirconium oxychloride ( $\text{ZrOCl}_2$ ).

4. The electrochemical element or cell according to the first claim, further characterized in that the inorganic crystalline additives included in the cathode consist of titanium dioxide ( $\text{TiO}_2$ ) with rutile structure.

5. The electrochemical element or cell according to the first claim, further characterized in that the inorganic crystalline additives included in the cathode consist of yttrium oxide ( $\text{Y}_2\text{O}_3$ ) or cerium dioxide ( $\text{CeO}_2$ ).

6. The electrochemical element or cell according to the first claim, further characterized in that the inorganic crystalline additives included in the cathode consist of zeolites, aluminosilicate clays, or mixtures of both.

7. The electrochemical element or cell according to the first claim, further characterized in that the mentioned zeolites included in the cathode have a ZSM-5 pentasile structure with an Si/Al ratio in the range of 20 to 600.

8. The electrochemical element or cell according to the first claim, further characterized in that the mentioned aluminosilicate clays included in the cathode are of the kaolinite or montmorillonite type with an Si/Al ratio in the range of 2 to 5.

9. The electrochemical element or cell according to the first claim, further characterized in that the total anticipated proportion of inorganic crystalline additive in the cathode is made up of one or more of the specified inorganic crystalline additives.

10. The electrochemical element or cell according to the first claim, further characterized in that the mentioned inorganic crystalline additives may contain water of crystallization.

11. The electrochemical element or cell according to the first claim, further characterized in that the mentioned inorganic additives may contain foreign ions and thus be doped with them.

12. The electrochemical element or cell according to the first claim, further characterized in that the element or cell is alkaline.

13. The electrochemical element or cell according to the first claim, further characterized in that the anode includes zinc particles.

14. The electrochemical element or cell according to the first claim, further characterized in that it also contains a solution of electrolyte.

15. A cathode for an electrochemical element or cell according to the first claim, further characterized in that it is a cathode composed of manganese dioxide and it incorporates an inorganic crystalline additive of tungsten oxide, compounds of zirconium, titanium oxide with rutile structure, yttrium oxide, cerium oxide, zeolites and aluminosilicates, and in that at least one of these additives is present in a proportion or range between one ten thousandth (0.0001) and ten (10) percent by weight of the cathode mass.

16. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the additives included in it consist of tungsten oxides, specifically barium tungstenate ( $\text{BaWO}_4$ ), sodium tungstenate ( $\text{Na}_2\text{WO}_4$ ), strontium tungstenate ( $\text{SrWO}_4$ ) and manganese (II) tungstenate ( $\text{MnWO}_4$ ).

17. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the additives included in it consist of zirconium compounds, specifically zirconium oxynitrate ( $\text{ZrO}(\text{NO}_3)_2$ ) and zirconium oxychloride ( $\text{ZrOCl}_2$ ).

18. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode

where the additives included in it consist of titanium dioxide ( $\text{TiO}_2$ ) with rutile structure.

19. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the additives included in it consist of yttrium oxide ( $\text{Y}_2\text{O}_3$ ) or cerium dioxide ( $\text{CeO}_2$ ).

20. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the additives included in it consist of zeolites, aluminosilicate clays, or mixtures of both.

21. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the zeolites included in it have a ZSM-5 pentasile structure with an Si/Al ratio in the range of 20 to 600.

22. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the aluminosilicate clays included in it are of the kaolinite or montmorillonite type with an Si/Al ratio in the range of 2 to 5.

23. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that the total anticipated proportion of inorganic crystalline additive in the cathode is made up of one or more of the specified inorganic crystalline additives.

24. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that the mentioned inorganic crystalline additives can contain water of crystallization.

25. The cathode for an electrochemical element or cell in accordance with the first claim and the fifteenth claim, further characterized in that it is a cathode where the additives included in it can contain foreign ions and therefore be doped with them.

26. A cathode for an electrochemical element or cell, characterized in that it is a galvanic [electrolytic] element which includes a cathode of manganese dioxide according to the fifteenth claim.